

Approved
4/19/63

ANNUAL WATER PROGRAM

Water supplies for Medicine Lake Refuge impoundments were adequate the entire year. Initial spring runoff was moderate but did bring impoundments to near-operational levels. Cloudbursts in the drainage area north and east of the refuge brought a deluge of water onto the refuge in June that raised water levels well above operational level and it was several weeks before normal levels could be restored.

1962 water use, source, and distribution is as follows:

<u>AREA OF USE</u>	<u>VOLUME (acre-feet)</u>	<u>SOURCE</u>
Medicine Lake	14,800	Big Muddy & Lake Creek
Homestead	3,400	Big Muddy, Sheep & Lost Creek
Unit No. 10	1,900	Cottonwood, Lake & Sand Creek
Unit No. 11	1,100	Cottonwood & Lake Creek
Unit No. 12	1,400	Lake Creek
Katy's Lake	700	Lake Creek
<u>Total</u>	<u>23,300</u>	

Handwritten note: Exact to 1963's & 2012

Levels in each impoundment and deficiency at the end of December, 1962, is as follows:

<u>IMPOUNDMENT</u>	<u>LEVEL</u>	<u>DEFICIENCY</u>	
		<u>FEET</u>	<u>ACRE FEET</u>
Medicine Lake	1942.06	.94	8.178
Homestead	1936.62	1.03	1,318
Unit No. 10	1944.39	.61	671
Unit No. 11	1950.82	.72	230
Unit No. 12	1953.46	.54	335
Katy's Lake	1953.18	.82	262
Total		:	<u>10,994</u>

As will be noted in the above table approximately 11,000 acre-feet of water will be needed in 1963 to bring impoundments to operational level; less than one-half the water needed in 1962. Prospects for adequate spring runoff are good and there should be little difficulty in attaining operational levels.

Production of waterfowl food plants and nesting cover is excellent when waterlevels are at or near recommended operational level. There is no need at this time to adjust levels to deter or promote plant succession. Explanation of recommended waterlevel changes as follows.

As will be noted in the appended table of monthly gauge readings, we are recommending two changes in operational levels. The first change involves Lake No. 11. Shortly after our assignment to Medicine Lake we noted that the recommended level of 1952.54 for Lake 11 could not be maintained even under ideal water conditions. The level of the spill was checked, and verified by Mr. West this fall, and was found to be 1951.7. During high water this past spring we were able to observe the affect of water on the nesting islands where levels are above 1951.7. Much of the island area is lost, particularly on low-lying islands, and nesting cover is inundated. We are not certain as to the course of the discrepancy between operating and spill levels. Perhaps through the years the spillway, and the islands, have eroded or perhaps there may have been an error in establishing or re-typing the operational level. At any rate it is our recommendation that the operational level be changed to 1951.54 until such time as it is deemed advisable to raise both the spillway and nesting island levels.

The second change involves Katy's Lake. Although we do not have a water right at this time to impound water in Katy's Lake we nevertheless have impounded water to the 1953.00 level since inception of the refuge. Water supplies for Katy's Lake are received from a small drainage area and from Lake Creek through the Katy's Lake-Lake No. 12 water control structures. It is our recommendation that Katy's Lake be carried at the same operational level of 1954.00 that is carried in Lake No. 12. Katy's Lake has a history of botulism and algae poisoning and under certain conditions it is highly desirable to lower waterlevels. Inasmuch as water must be released through Lake No. 12 it is presently impossible to lower levels other than through normal evaporation. A level of 1954.00 would not seriously affect the nesting islands and an adjacent landowner affected by a change in levels not only would tolerate the higher level but actually encourages it. In view of the lack of water right on Katy's Lake it is possible our recommendation of a 1954.00 water level can not be approved at this time. Consideration should be given the higher level at the first opportunity, however.

All water use and distribution, other than on Katy's Lake, conforms with our established water rights.

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Monthly Record of Gauge Readings

IMPOUNDMENTS

	No. 4	No. 6	No. 10	No. 11	No. 12	Katy's Lake
Present Operational Levels	1943.00	1937.65	1945.00	1952.54	1954.00	1953.00
Recommended Levels	1943.00	1937.65	1945.00	1951.54	1954.00	1954.00
Level by Month						
January	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
February	"	"	"	"	"	"
March	1942.54	1936.70	1946.38	1952.30	1952.70	B.G.*
April	1943.42	1937.75	1944.75	1951.22	1954.82	1953.10
May	1943.10	1937.65	1944.90	1951.52	1954.30	1953.10
June	1943.10	1937.65	1946.49	1952.42	1954.60	1954.12
July	1942.82	1937.88	1945.43	1951.38	1954.56	1953.92
August	1942.34	1937.38	1944.83	1950.92	1953.74	1953.38
September	1942.00	1936.76	1944.40	1950.60	1953.40	1953.12
October	1942.20	1936.92	1944.45	1950.82	1953.40	1953.20
November	1942.06	1936.62	1944.39	1950.82	1953.46	1953.18
December	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen

* Below Gauge